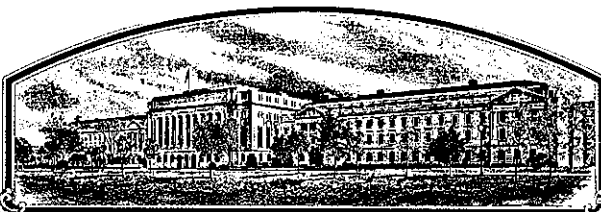


No.

8600082



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

**Busch Agricultural Resources, Inc.**

Whereas, THERE HAS BEEN PRESENTED TO THE

**Secretary of Agriculture**

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT.

UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS SEED OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS AUTHORIZED BY THE OWNER OF THE RIGHTS. (34 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BARLEY

'81201'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D. C. this 31st day of December in the year of our Lord one thousand nine hundred and ninety.

Attest

*Kenneth H. Evans*  
Commissioner

Plant Variety Protection Office  
Agricultural Marketing Service

*Clayton Gentler*  
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2428).

## APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

1. NAME OF APPLICANT(S) Busch Agricultural Resources, Inc.		2. TEMPORARY DESIGNATION 2B80-529		3. VARIETY NAME B1201	
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) 806 N. 2nd Street Berthoud, Colorado 80513		5. PHONE (Include area code) 303-532-3721		FOR OFFICIAL USE ONLY PVPO NUMBER 8600082	
6. GENUS AND SPECIES NAME Hordeum vulgare L.		7. FAMILY NAME (Botanical) Gramineae		FILING DATE <u>March 17, 1986</u> TIME <u>10:00</u> <input checked="" type="checkbox"/> A.M. <input type="checkbox"/> P.M.	
8. KIND NAME Spring Barley		9. DATE OF DETERMINATION March 1, 1978 March 1, 1980		FEES RECEIVED AMOUNT FOR FILING \$ <u>1800.00</u> DATE <u>March 17, 1986</u> AMOUNT FOR CERTIFICATE \$ <u>200.00</u> DATE <u>Dec. 17, 1990</u>	
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Corporation				12. DATE OF INCORPORATION 1-1-81	
11. IF INCORPORATED, GIVE STATE OF INCORPORATION Delaware					
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS Dr. Melvern K. Anderson Busch Agricultural Resources, Inc. 806 N. 2nd Street Berthoud, Colorado 80513 (303)532-3721 or C. Bruns Nickerson American Plant Breeders Inc. 806 N. 2nd Street Berthoud, CO 80513					
14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED a. <input checked="" type="checkbox"/> Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.) b. <input checked="" type="checkbox"/> Exhibit B, Novelty Statement. c. <input checked="" type="checkbox"/> Exhibit C, Objective Description of Variety (Request form from Plant Variety Protection Office.) d. <input checked="" type="checkbox"/> Exhibit D, Additional Description of Variety. e. <input checked="" type="checkbox"/> Exhibit E, Statement of the Basis of Applicant's Ownership. <u>Exhibit F. Quality Data</u>					
15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a) of the Plant Variety Protection Act.) <input checked="" type="checkbox"/> Yes (If "Yes," answer items 16 and 17 below) <input type="checkbox"/> No					
16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input checked="" type="checkbox"/> Foundation <input checked="" type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified		
18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.? <input type="checkbox"/> Yes (If "Yes," give date) <input checked="" type="checkbox"/> No					
19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETING IN THE U.S. OR OTHER COUNTRIES? <input type="checkbox"/> Yes (If "Yes," give names of countries and dates) <input checked="" type="checkbox"/> No					
20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable. The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF APPLICANT <u>Melvorn K. Anderson, Busch Agr. Res., Inc.</u>				DATE <u>2/26/86</u>	
SIGNATURE OF APPLICANT				DATE	

## EXHIBIT A

## Origin and Breeding History of B1201 (2B80-529; BA529)

Pedigree: Summit/Klages

Date of Cross: The cross was made in the fall 1977 greenhouse; the F1 was grown in the spring 1978 greenhouse to produce F2 seed.

History: F2 plants were grown at Twin Falls, Idaho in 1978. A single seed from an F2 head selection was advanced by single seed descent in the fall 1978 greenhouse. An F4 head-row was selected in Twin Falls, Idaho in 1979. Malting quality prediction tests on remnant F4 seed assisted in the selection of an F5 seed increase plot in Christchurch, New Zealand for yield testing an F2 derived F6 bulk at Berthoud, Colorado and Nampa, Idaho in 1980. This line advanced to second year yield trials in 1981. In 1983 140 head selections were made to initiate purification and multiplication. Of these 140 head-rows grown in 1984 120 rows were selected. Additional head selections were made in 1984 and 288 head-rows were grown in 1985 from which 248 were selected to harvest for bulk Breeder seed.

This seed served as the pure seed source and yield trial source. B1201 was tested in yield trials from 1980-85 at Twin Falls, Boise, or Idaho Falls, Idaho and Berthoud, Colorado. B1201 has been tested as BA529 in the Western Spring Barley Nursery in 1985. B1201 has been tested in the Intermountain and Western barley growing states of Colorado, Wyoming, Idaho, Montana, Nebraska, Oregon and California as BA 529 by state of federal barley breeding programs.

Purification was initiated in 1984. There were 140 head-rows grown at our Berthoud, Colorado location and 120 were selected. Additional head selections were made in 1984 and 288 head-rows were grown in 1985 from which 248 were selected to harvest bulk Breeder seed. Foundation seed was produced during the winter of 1985-86 at Yuma, Arizona.

Future head-rows will be grown as necessary to constitute Breeder seed. The two seed production fields to date have been stable and uniform.

## EXHIBIT E.

## NOVELTY STATEMENT

B1201 is most similar to the spring barley variety "Summit", however it can be distinguished by the following morphological characteristics:

- B1201 has a longer stem exertion than Summit's. B1201's stem exertion equals 3 to 10 centimeters; Summit's stem exertion equals 0 to 3 centimeters.
- B1201 has a closed collar on the stem. Summit has a V-shaped collar on the stem.
- B1201 has a drooping to 90 degree angle on the position of its flag leaf at boot stage. Summit possess's an upright flag leaf at boot stage.
- B1201 does not express stem anthocyanin. Summit does express stem anthocyanin.
- B1201 has higher malt extract and alpha amylase than Summit, (see following page).

## STATISTICAL TABLE FOR EXTRACT

<u>Variety</u>	<u>Mean</u>	<u>S<math>\bar{d}</math></u>	<u><math>\bar{d}</math></u>	<u>n</u>	<u>t</u>
B1201	80.7	0.659	1.47	12	2.231*
Summit	79.2				

\* The probability that difference in means of extract are significantly different at the 5% level.

## STATISTICAL TABLE FOR ALPHA AMYLASE

<u>Variety</u>	<u>Mean</u>	<u>Sd</u>	<u>d</u>	<u>n</u>	<u>t</u>
B1201	38.1	0.288	11.1	4	38.54**
Summit	27.0				

\*\* The probability that the difference in the means of alpha amylase is significantly different at the 1% level.

## STATISTICAL TABLE FOR HEADING DATE

<u>Variety</u>	<u>Mean</u>	<u>SD</u>	<u>d</u>	<u>n</u>	<u>t</u>
B1201	172.0	0.643	1.9	10	2.95*
Summit	170.1				

\* The probability that the difference in the means of heading date is significantly different at the 5% level.

UNITED STATES DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE  
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION  
BELTSVILLE, MARYLAND 20705

EXHIBIT C  
(Barley)

OBJECTIVE DESCRIPTION OF VARIETY  
BARLEY (*HORDEUM VULGARE*)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)

Busch Agricultural Resources, Inc.

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)

806 N. 2nd Street  
Berthoud, Colorado 80513

FOR OFFICIAL USE ONLY

PVPO NUMBER

8600082

VARIETY NAME OR TEMPORARY  
DESIGNATION

B1201

Place the appropriate number that describes the varietal character of this variety in the boxes below.

Place a zero in first box (i.e.  or ) when number is either 99 or less or 9 or less.

1. GROWTH HABIT:

1 = SPRING 2 = FACULTATIVE WINTER 3 = WINTER  Early Growth: 1 = PROSTRATE 2 = SEMIPROSTRATE  
3 = ERECT

2. MATURITY (50% Flowering):

1 = EARLY (California Mariout) 2 = MIDSEASON (Betzes) 3 = LATE (Frontier)

No. of days Earlier than .....  Equal to Klages (9)  
1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON  
 No. of days Later than .....  5 = PIROLINE 6 = PRIMUS 7 = UNITAN 8 = Summit 9 = Klages

3. PLANT HEIGHT (From soil level to top of head):

1 = SEMIDWARF 2 = SHORT (California Mariout) 3 = MEDIUM TALL (Betzes) 4 = TALL (Conquest)

Cm. Shorter than .....  Equal to Klages (9)  
1 = BETZES 2 = CALIFORNIA MARIOUT 3 = CONQUEST 4 = DICKSON  
 Cm. Taller than .....  5 = PIROLINE 6 = PRIMUS 7 = UNITAN 8 = Summit 9 = Klages

4. STEM:

Exertion (Flag to spike at maturity): 1 = 0 - 3 cm. 2 = 3 - 10 cm.  Anthocyanin: 1 = ABSENT 2 = PRESENT  
3 = 10 - 15 cm.

NO. OF NODES (Originating from node above ground)

Collar Shape: 1 = CLOSED 2 = V-SHAPED 3 = OPEN  Shape of Neck: 1 = STRAIGHT 2 = SNAKY  
4 = MODIFIED CLOSED OR OPEN 3 = OTHER (Specify)

5. LEAF:

Basal leaf sheath (seedling): 1 = GLABROUS 2 = PUBESCENT  Position of flag leaf (at boot stage): 1 = DROOPING to 90 degree  
2 = UPRIGHT angle

Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY  
3 = WAXY

CM. LENGTH (First leaf below flag leaf)

MM. WIDTH (First leaf below flag leaf)

6. HEAD:

Type: 1 = TWO-ROWED 2 = SIX-ROWED

Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE  
4 = OTHER (Specify)

Lateral Kernels Overlap: 1 = NONE 2 = AT TIP  
3 = 1/4 - 1/2 OF HEAD

Density: 1 = LAX 2 = ERECT (Not dense)  
3 = ERECT (Dense)

Waxiness: 1 = ABSENT (Glossy) 2 = SLIGHTLY WAXY  
3 = WAXY

Rachis (Hair on edge): 1 = LACKING 2 = FEW 3 = COVERED

7. GLUME:

Length: 1 = 1/3 OF LEMMA 2 = 1/2 OF LEMMA  
3 = MORE THAN 1/2 OF LEMMA

Hair covering: 1 = NONE 2 = RESTRICTED TO MIDDLE 3 = CONFINED TO BAND 4 = COMPLETELY COVERED

Awns: 1 = LESS THAN EQUAL TO LENGTH OF GLUMES 2 = EQUAL TO LENGTH OF GLUMES  
3 = MORE THAN EQUAL TO LENGTH OF GLUMES

Awn Surface: 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH

7/2/82

7



**8. LEMMA:**

- Awn: 1 = AWNLESS 2 = AWNLETS ON CENTRAL ROWS, AWNLESS ON LATERAL ROWS  
 3 = SHORT ON CENTRAL ROWS, AWNLETS ON LATERAL ROWS 4 = SHORT (less than equal to length of spike)  
 5 = LONG (longer than spike) 6 = HOODED
- Awn Surface: 0 = AWNLESS 1 = SMOOTH 2 = SEMISMOOTH 3 = ROUGH
- Teeth: 1 = ABSENT 2 = FEW 3 = NUMEROUS  Hair: 1 = ABSENT 2 = PRESENT
- Shape of base: 1 = DEPRESSION 2 = SLIGHT CREASE  Rachilla Hairs: 1 = SHORT 2 = LONG  
 3 = TRANSVERSE CREASE

**9. STIGMA:**

- Hairs: 1 = FEW 2 = MANY

**10. SEED:**

- Type: 1 = NAKED 2 = COVERED  Hairs on Ventral Furrow: 1 = ABSENT 2 = PRESENT
- Length: 1 = SHORT (8.0 mm.) 2 = SHORT TO MIDLONG (7.5 - 9.0 mm.) 3 = MIDLONG (8.5 - 9.5 mm.)  
 4 = MIDLONG TO LONG (9.0 - 10.5 mm.) 5 = LONG (10.0 mm.)
- Wrinkling of hull: 1 = NAKED 2 = SLIGHTLY WRINKLED 3 = SEMIWRINKLED 4 = WRINKLED
- Aleurone Color: 1 = COLORLESS (White or Yellow) 2 = BLUE
- PERCENT ABORTIVE   GMS. PER 1000 SEEDS

**11. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) 3=moderately susceptible 4=moderately resistant**

- |   |   |   |   |
|---|---|---|---|
| <input type="text" value="0"/> SEPTORIA   | <input type="text" value="3"/> NET BLOTCH       | <input type="text" value="0"/> SPOT BLOTCH  | <input type="text" value="4"/> POWDERY MILDEW   |
| <input type="text" value="0"/> LOOSE SMUT | <input type="text" value="0"/> BACTERIAL BLIGHT | <input type="text" value="0"/> COVERED SMUT | <input type="text" value="0"/> FALSE LOOSE SMUT |
| <input type="text" value="0"/> STEM RUST  | <input type="text" value="0"/> LEAF RUST        | <input type="text" value="0"/> SCAB         | <input type="text" value="0"/> SCALD            |
| <input type="text" value="0"/> AY         | <input type="text" value="0"/> BSMV             | <input type="text" value="0"/> BYDV         | <input type="text" value="0"/> OTHER (Specify)  |

**12. INSECT: (0 = Not tested, 1 = Susceptible, 2 = Resistant)**

- |  |  |   |   |
|--|--|---|---|
| <input type="text" value="0"/> GREEN BUG     | <input type="text" value="0"/> ENGLISH GRAIN APHID | <input type="text" value="0"/> CHINCH BUG             | <input type="text" value="0"/> ARMYWORM |
| <input type="text" value="0"/> GRASS HOPPERS | <input type="text" value="0"/> CERIAL LEAF BETTLE  | <input type="text" value="--"/> OTHER (Specify) _____ |   |
| HESSIAN FLY RACES {                          |  |   |   |
| <input type="text" value="0"/> GP            | <input type="text" value="0"/> A                   | <input type="text" value="0"/> B                      | <input type="text" value="0"/> C        |
| <input type="text" value="0"/> D             | <input type="text" value="0"/> E                   | <input type="text" value="0"/> F                      | <input type="text" value="0"/> G        |

**13. CHEMICAL (0 = Not Tested, 1 = Susceptible, 2 = Resistant)**

- DDT  OTHER (Specify) \_\_\_\_\_

**14. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:**

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Summit	Seed size	Summit
Leaf size	Summit	Coleoptile elongation	Summit
Leaf color	Summit	Seedling pigmentation	Summit
Leaf carriage	Summit		

**REFERENCES:** The following publications may be used as a reference aid for the standardization of character descriptions and terms used in this form:

1. Wiebe, G. A., and D. A. Reid, 1961, Classification of Barley Varieties Grown in the United States and Canada in 1958, Technical Bulletin No. 1224, U.S. Dept. of Agriculture.
2. Reid, D. A., and G. A. Wiebe, 1968, Barley: Origin, Botany, Culture, Winter Hardiness, Genetics, Utilization, Pests, Agriculture Handbook No. 338, U.S. Dept. of Agriculture, pp. 61 - 84.
3. Malting Barley Improvement Association, Milwaukee, Wisconsin, 1971, Barley Variety Dictionary.

**COLOR:** Nickerson's or any recognized color fan may be used to determine color of the described variety.

## EXHIBIT D.

### ADDITIONAL DESCRIPTION OF B1201

B1201 is a two-rowed spring barley developed by Busch Agricultural Resources, Inc. It is midseason in maturity and has good malting quality.

B1201 has an erect juvenile growth habit. The spike is lax in density with a semi-nodding head. Lemma awn is long and rough. Rachilla hairs are short as are the rachis hairs and hairs on the glume. Glume hair covering is confined to a band, to completely covered, while the glume awns are equal to the length of the glume. The aleurone is colorless and the hull is adhering and semiwrinkled.

B1201 is adapted to the intermountain west area from Montana to Washington and down to Colorado.

## EXHIBIT E.

## STATEMENT OF THE BASIS OF APPLICANT'S OWNERSHIP

Busch Agricultural Resources, Inc. is the applicant for protection in this case being:

- a. The incorporated business registered in Delaware for and within which regular employees have bred B1201.
- b. The proprietary owner and intending commercial seller of B1201.

EXHIBIT F.

QUALITY DATA B1201

## Quality Summary For B1201

VARIETY OR LINE	% PLUMP	MALT	PROTEIN WORT	W/T	EXT	D.P.	DP/ PRO	A.A
B1201	84	11.8	4.4	37	80.7	84	7.1	35
B1202	86	12.3	4.4	36	80.3	109	8.9	43
KLAGES	75	12.5	4.6	37	79.8	97	7.8	34

12/02/85  
ddt